National Institute of Environmental Health Sciences

The effect of atmospheric thermal conditions and urban thermal pollution on all-cause and cardiovascular mortality in Bangladesh

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Abstract:

This study assessed the effect of temperature and thermal atmospheric conditions on all-cause and cardiovascular mortality in Bangladesh. In particular, differences in the response to elevated temperatures between urban and rural areas were investigated. Generalized additive models (GAMs) for daily death counts, adjusted for trend, season, day of the month and age were separately fitted for urban and rural areas. Breakpoint models were applied for determining the increase in mortality above and below a threshold (equivalent) temperature. Generally, a 'V'-shaped (equivalent) temperature-mortality curve with increasing mortality at low and high temperatures was observed. Particularly, urban areas suffered from heat-related mortality with a steep increase above a specific threshold. This adverse heat effect may well increase with ongoing urbanization and the intensification of the urban heat island due to the densification of building structures. Moreover, rising temperatures due to climate change could aggravate thermal stress.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Meteorological Factors, Temperature, Other Exposure

Air Pollution: Interaction with Temperature

Temperature: Extreme Heat, Fluctuations

Other Exposure: cloud coverage; apparent temperature

Geographic Feature:

resource focuses on specific type of geography

Rural, Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Bangladesh

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Morbidity/Mortality

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular disease mortality

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified